
APPENDIX F-3

Air Quality Technical Appendix
VOC and PM₁₀ Emissions Calculations

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Pre-Project Facility Information

- Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
- Does the facility have an anaerobic treatment lagoon?
- Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
- Does the facility land apply solid manure?
Answering "yes" assumes worst case.
- Is any scraped manure sent to a lagoon?
Answering "yes" assumes worst case.

Pre-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	1,063				1,063		
Dry Cows	158				158		
Support Stock (Heifers, Calves, and Bulls)					0		
Large Heifers				467	467		
Medium Heifers				344	344		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves				186			186

Total Herd Summary	
Total Milk Cows	1,063
Total Mature Cows	1,221
Support Stock (Heifers, Calves, and Bulls)	811
Total Calves	186
Total Dairy Head	2,218

Pre-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	30	65
Alfalfa	1	25	65
Wheat			

Post-Project Facility Information

- Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
- Does the facility have an anaerobic treatment lagoon?
- Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
- Does the facility land apply solid manure?
Answering "yes" assumes worst case.
- Is any scraped manure sent to a lagoon?
Answering "yes" assumes worst case.
- Does this project result in any new lagoon/storage pond(s) or an increase in surface area for any existing lagoon/storage pond(s)?

Post-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	2,500				2,500		
Dry Cows	400				400		
Support Stock (Heifers, Calves, and Bulls)					0		
Large Heifers				375	375		
Medium Heifers				375	375		
Small Heifers				375	375		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves				375			375

Total Herd Summary	
Total Milk Cows	2,500
Total Mature Cows	2,900
Support Stock (Heifers, Calves, and Bulls)	1,125
Total Calves	375
Total Dairy Head	4,400

Post-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	30	65
Alfalfa	1	25	65
Wheat			

Post-Project Potential to Emit (PE2)

Post-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows	2,500	0	0	0	2,500	
Dry Cows	400	0	0	0	400	
Support Stock (Heifers, Calves, and Bulls)	0	0	0	0	0	
Large Heifers	0	0	0	375	375	
Medium Heifers	0	0	0	375	375	
Small Heifers	0	0	0	375	375	
Bulls	0	0	0	0	0	
Calf Hutches				Calf Corrals		Total # of Calves
Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves	0	0	0	375	0	375

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft ²)
Corn	1	30	65	1,637
Alfalfa	1	25	65	1,339
Wheat	0	0	0	

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows				
Total	2.7	1,000	0.9	342

Cow Housing						
	VOC		NH3		PM10	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Total	92.0	33,598	187.7	68,530	28.2	10,231

Liquid Manure Handling						
Cow	VOC		NH3		H2S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	16.6	6,075	84.3	30,775	4	1,476
Dry Cows	1.5	532	6.9	2,504	0.3	121
Support Stock (Heifers, Calves, and Bulls)	0.0	0	0.0	0	0	0
Large Heifers	1.0	383	3.3	1,215	0.2	59
Medium Heifers	0.7	259	2.4	863	0.1	41
Small Heifers	0.4	143	1.8	675	0.1	32
Calves	0.2	68	0.5	195	0	9
Bulls	0.0	0	0.0	0	0	0
Total	20.4	7,458	99.2	36,227	4.7	1,739

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	3.4	1,225	19.4	7,075
Dry Cows	0.3	104	1.6	572
Support Stock (Heifers, Calves, and Bulls)	0.0	0	0.0	0
Large Heifers	0.2	75	0.8	281
Medium Heifers	0.1	53	0.5	199
Small Heifers	0.1	30	0.4	150
Calves	0.0	15	0.1	45
Bulls	0.0	0	0.0	0
Total	4.1	1,502	22.8	8,322

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	16.7	6,100
Alfalfa Emissions	3.4	1,255
Wheat Emissions	0.0	0
TMR	109.5	39,983
Total	129.6	47,338

Total Daily Post-Project Potential to Emit (lb/day)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	2.7	0.9	0.0
Cow Housing	0.0	0.0	28.2	0.0	92.0	187.7	0.0
Liquid Manure	0.0	0.0	0.0	0.0	20.4	99.2	4.7
Solid Manure	0.0	0.0	0.0	0.0	4.1	22.8	0.0
Feed Handling	0.0	0.0	0.0	0.0	129.6	0.0	0.0
Total	0.0	0.0	28.2	0.0	248.8	310.6	4.7

Total Annual Post-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	1,000	342	0
Cow Housing	0	0	10,231	0	33,598	68,530	0
Liquid Manure	0	0	0	0	7,458	36,227	1,739
Solid Manure	0	0	0	0	1,502	8,322	0
Feed Handling	0	0	0	0	47,338	0	0
Total	0	0	10,231	0	90,896	113,421	1,739

Calculations for milking parlor:

$$\text{Annual PE} = (\# \text{ milk cows}) \times (\text{EF2 lb-pollutant/hd-yr})$$

$$\text{Daily PE} = (\text{Annual PE lb/yr}) \div (365 \text{ day/yr})$$

Calculations for cow housing:

See detailed calculations under Cow Housing Calculations worksheet.

Calculations for liquid manure and solid manure handling:

$$\text{Annual PE} = [(\# \text{ milk cows}) \times (\text{EF1 lb-pollutant/hd-yr}) + (\# \text{ dry cows}) \times (\text{EF2 lb-pollutant/hd-yr}) + (\# \text{ large heifers}) \times (\text{EF2 lb-pollutant/hd-yr}) + (\# \text{ medium heifers}) \times (\text{EF2 lb-pollutant/hd-yr}) + (\# \text{ small heifers}) \times (\text{EF2 lb-pollutant/hd-yr}) + (\# \text{ calves}) \times (\text{EF2 lb-pollutant/hd-yr}) + (\# \text{ bulls}) \times (\text{EF2 lb-pollutant/hd-yr})]$$

$$\text{Daily PE} = (\text{Annual PE lb/yr}) \div (365 \text{ day/yr})$$

The H2S emission factor is assumed to be 10% of the NH3 lagoon/storage pond(s) emission factor, for each respective herd size.

Calculations for silage emissions:

$$\text{Annual PE} = (\text{EF2}) \times (\text{area ft}^2) \times (0.0929 \text{ m}^2/\text{ft}^2) \times (8,760 \text{ hr/yr}) \times (60 \text{ min/hr}) \times 2.20\text{E-}9 \text{ lb}/\mu\text{g}$$

$$\text{Daily PE} = (\text{Annual PE lb/yr}) \div (365 \text{ day/yr})$$

Calculation for TMR emissions:

$$\text{Annual PE} = (\# \text{ cows}) \times (\text{EF2}) \times (0.658 \text{ m}^3) \times (525,600 \text{ min/yr}) \times (2.20\text{E-}9 \text{ lb}/\mu\text{g})$$

$$\text{Daily PE} = (\text{Annual PE lb/yr}) \div (365 \text{ day/yr})$$

Calves are not included in TMR calculation.

Major Source Emissions (lb/yr)					
Permit	NOx	SOx	PM10	CO	VOC
Milking Parlor	0	0	0	0	0
Cow Housing	0	0	0	0	0
Liquid Manure	0	0	0	0	3,591
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	3,591

Herd Breakout

	Existing	Proposed
Milking Cow	1,063	2,500
Dry Cow	158	400
Heifer (15-24 mo)	467	375
Heifer (7-14 mo)	344	375
Calves (4-6 mo)	0	375
Calf (under 3 mo)	186	375
Bulls	0	0
Totals	2,218	4,400

The estimated VOC emissions used in this analysis are from the SJVAPCD dairy emissions calculator dated September 2015.

VOC Emissions from Harvested Acres in Merced County

	tons/day	lbs/year	lbs/acre/yr
Merced Farm	0.98	715,400	1.49
Harvested Acres	480,103		
		lbs/year	tons/year
Acres Existing	498	742	0.37
Acres Proposed	726	1,082	0.54

Farm Equipment emissions were calculated using an emissions factor of 1.49 lbs/acre/year of VOC based on an estimated 0.95 tons/day VOC emitted from farming equipment in the County, with 466,304 acres harvested.

VOC Emissions from Farming Equipment and Traffic

	Existing VOC (tons/year)	Proposed VOC (tons/year)	Increment of Increase
Traffic and Area Sources	0.53	1.45	0.92
Farm Equipment	0.37	0.54	0.17
Total	0.90	1.99	1.09

Traffic and Area Sources emissions were estimated using CalEEMod v. 2016.3.2 (See Appendix F-2)

VOC Aggregate

Emission Source	Existing VOC/ROG Emissions (tons/year)	Proposed VOC/ROG Emissions (tons/year)	Increment of Increase (tons/year)
Equipment and Increased Traffic	0.90	1.99	1.09
Manure Management & Feed	24.10	45.45	21.35
Total	25.00	47.44	22.44

VOC emissions from the herd, manure management, and feed from the SJVAPCD calculator were estimated at 48,203 lbs/year for existing operations, and 90,896 lbs/year for proposed operations.

Herd Breakout

	Existing	Proposed
Milking Cow	1,063	2,500
Dry Cow	158	400
Heifer (15-24 mo)	467	375
Heifer (7-14 mo)	344	375
Heifer (4-6 mo)	0	375
Calf (under 3 mo)	186	375
Bulls	0	0
Totals	2,218	4,400

PM 10 Emissions from Cow Housing

	Existing Total Emissions (lbs/yr)	Proposed Total Emissions (lbs/yr)	Increment of Increase
Totals	10,483	10,231	
Tons/Year	5.24	5.12	-0.13

See SJVAPCD Calculator for PM10 Calculation Worksheets and Controls

Wind Erosion Cropped Fields

	PM Emission Factor (tons/acre/yr)	PM10/PM2.5 Emission Factor (tons/acre/yr)	Emission Factor (lbs/acre/yr)	Existing Acreage	Existing Emissions (tons/year)	Proposed Acreage	Proposed Emissions (tons/year)
PM10	0.013659	0.0068295	13.7	498	3.40	726	4.96
PM2.5*		0.0011851	2.37	498	0.59	726	0.86
Note: PM2.5 Emissions Factor estimated from a comparison of Annual Average Emissions of both PM10 and PM2.5 as found in CARB Almanac Emission Projection Data (Published in 2013). 2012 Estimated Annual Average Emissions. 2012 Emissions Data for Merced County, Dust from Agricultural Lands (Non-Pasture). http://www.arb.ca.gov/ei/emissiondata.htm							
California Air Resources Board, Section 7.12, Windblown Dust - Agricultural Lands, Revised July 1997. http://www.arb.ca.gov/ei/areasrc/index7.htm							

Mobile Source Emissions

Type of Vehicle	Increased Total Emissions (lbs/yr)	Increased Total Emissions (tons/yr)
Milk Tankers	1.85E-01	9.25E-05
Commodity Delivery	7.26E-01	3.63E-04
Solid Manure	2.86E+00	1.43E-03
Rendering Service	3.00E-02	1.50E-05
Milk Tankers (Idling)	1.83E-01	9.15E-05
Commodity (Idling)	6.52E-02	3.26E-05
Solid Manure (Idling)	2.51E-01	1.26E-04
Rendering (Idling)	1.30E-02	6.50E-06
Feed Loading Tractor	3.59E+01	1.80E-02
Bedding Delivery Tractor	2.04E+00	1.02E-03
Manure Scraping Tractor	6.26E-01	3.13E-04
Manure Loading Tractor	1.97E-01	9.85E-05
Feed Delivery	6.56E+01	3.28E-02
Total	108.68	0.05

On-site mobile source emissions obtained from AAQA Appendix B

Land Preparation and Harvesting

	Crop Type	PM10 Emission Factor (lbs/acre/year)	PM2.5 Emission Factor (lbs/acre/year)	Existing Acreage	Existing PM10 Emissions (tons/year)	Existing PM2.5 Emissions (tons/year)	Proposed Acreage	Proposed PM10 Emissions (tons/year)	Proposed PM2.5 Emissions (tons/year)
Land Preparation	Oats, silage soft dough	3.70	0.55	249	0.46	0.07	242	0.45	0.07
	Corn, silage	6.90	1.03	249	0.86	0.13	242	0.83	0.13
	Sudangrass, silage	4.00	0.60	0	0.00	0.00	242	0.48	0.07
Total Land					1.32	0.20		1.77	0.26
Harvesting	Oats, silage soft dough	5.80	0.87	249	0.72	0.11	242	0.70	0.11
	Corn, silage	0.17	0.03	249	0.02	0.00	242	0.02	0.00
	Sudangrass, silage	0.00	0.00	0	0.00	0.00	242	0.00	0.00
Total Harvesting					0.74	0.11		0.72	0.11
Total Farming Operations					2.06	0.31		2.49	0.37
	Notes: CARB PM10 emission factors based on 2000 crop acreage. PM2.5 Emissions Factor estimated from a comparison of Annual Average Emissions of both PM10 and PM2.5 as found in CARB Almanac Emission Projection Data (Published in 2013). 2012 Estimated Annual Average Emissions. 2012 Emissions Data for Merced County, Dust from Agricultural Lands (Non-Pasture). http://www.arb.ca.gov/ei/emissiondata.htm								
	California Air Resources Board, Section 7.4, Agricultural Land Preparation, Revised January 2003. Section 7.5, Agricultural Harvest Operations, Revised January 2003. http://www.arb.ca.gov/ei/areasrc/index7.htm								
	Based on double-cropping and triple-cropping, several fields would undergo land preparation and harvesting operations twice in a year, and therefore the acreage was considered for each occurrence. Cropping patterns obtained from existing and proposed NMPs.								

Dry Manure Application PM10 Emissions

	Emission Factor (lbs/acre/yr)	Existing Acreage	Existing Emissions (tons/year)	Proposed Acreage	Proposed Emissions (tons/year)
PM10	5.07	301	0.76	249	0.63
	Based on double-cropping, one field would receive dry manure two times in a year, and therefore the acreage was considered for each occurrence. Cropping patterns obtained from existing and proposed NMPs.				

Aggregate PM10 and PM2.5

Emission Source	Existing PM ₁₀ Emissions (tons/year)	Proposed PM ₁₀ Emissions (tons/year)	Project Increase PM10 Emissions	Existing PM _{2.5} Emissions (tons/year)	Proposed PM _{2.5} Emissions (tons/year)	Project Increase PM2.5 Emissions
Wind Erosion	3.40	4.96	1.56	0.59	0.86	0.27
Farming Operations	2.06	2.49	0.43	0.31	0.37	0.06
Traffic	0.05	0.09	0.04	0.02	0.05	0.03
On-Site Mobile Source	-	-	0.05			
Animal Movement	5.24	5.12	-0.13			
Dry Manure Application	0.76	0.63	-0.13	NA	NA	NA
Total	11.52	13.28	1.82	0.92	1.28	0.36

NOx Emissions from Harvested Acres in Merced County

	tons/day	lbs/year	lbs/acre/yr	tons/year	Increment of Increase
Merced Farm	5.37	3,920,100	8.17		
Total Harvested Acres	480,103				
Harvested Acres Existing	498	4,066.23		2.03	
Harvested Acres Proposed	726	5,927.88		2.96	0.93

Using the ARB's 2012 emissions inventory for Merced County and the U.S. Department of Agriculture's 2012 census for harvested acres in Merced County, an emission factor specific to the county can be derived for emissions from farm equipment as 8.17 pounds/acre/year for NOx

Mobile Source Emissions NOx

Type of Vehicle	Increased Total Emissions (lbs/yr)	Increased Total Emissions (tons/yr)
Milk Tanker	3.02E+00	1.51E-03
Commodity Delivery	1.19E+01	5.95E-03
Solid Manure	4.69E+01	2.35E-02
Rendering Service	4.90E-01	2.45E-04
Milk Truck (Idling)	9.48E+00	4.74E-03
Commodity (Idling)	3.51E+00	1.75E-03
Solid Manure (Idling)	1.35E+01	6.75E-03
Rendering (Idling)	7.03E-01	3.52E-04
Feed Loading Tractor	5.96E+02	2.98E-01
Bedding Delivery Tractor	2.84E+01	1.42E-02
Manure Scraping Tractor	8.72E+00	4.36E-03
Manure Loading Tractor	3.27E+00	1.64E-03
Feed Delivery	6.68E+02	3.34E-01
Total	1,394.29	0.70

On-site mobile source emissions obtained from AAQA Appendix B

Total NOx Emissions

	Increment of Increase
	tons/yr
Vehicle Trips and Area Sources	0.3
Farming Equipment	0.93
On-site dairy Equipment	0.70
Total	1.93

Vehicle Trips estimated using CalEEMod v.2016.3.2

Table 1. County Summary Highlights: 2012 (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Item	Marin	Mariposa	Mendocino	Merced	Modoc	Mono	Monterey
Farms number	323	364	1,220	2,486	437	72	1,179
Land in farms acres	170,876	283,611	770,257	978,667	523,522	56,386	1,268,144
Average size of farm acres	529	779	631	394	1,198	783	1,076
Median size of farm acres	100	113	50	38	277	166	80
Estimated market value of land and buildings:							
Average per farm dollars	3,295,414	1,638,972	2,533,399	3,045,778	2,061,595	2,205,825	5,263,068
Average per acre dollars	6,229	2,104	4,013	7,737	1,721	2,817	4,893
Estimated market value of all machinery and equipment \$1,000	22,360	16,286	63,290	587,824	54,649	10,420	467,834
Average per farm dollars	69,225	44,742	51,877	236,644	125,055	144,720	396,806
Farms by size:							
1 to 9 acres	61	39	251	374	35	7	234
10 to 49 acres	68	99	344	1,035	63	16	261
50 to 179 acres	50	75	310	490	93	14	233
180 to 499 acres	34	65	141	269	81	15	140
500 to 999 acres	46	26	66	140	57	5	98
1,000 acres or more	64	60	108	178	108	15	213
Total cropland farms	162	99	832	1,998	327	33	814
..... acres	14,409	12,575	49,298	522,593	154,728	11,378	358,294
Harvested cropland farms	135	66	758	1,903	257	30	694
..... acres	7,868	835	31,411	480,103	123,008	10,591	282,694
Irrigated land farms	99	87	648	1,987	282	44	608
..... acres	3,732	1,806	25,693	468,226	128,360	21,506	263,835

ALMANAC EMISSION PROJECTION DATA (PUBLISHED IN 2013)
2012 Estimated Annual Average Emissions
MERCED COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5
FARM EQUIPMENT	0.86	0.98	4.55	5.37	0.00	0.23	0.33	0.31

ALMANAC EMISSION PROJECTION DATA BY EIC (PUBLISHED IN 2013)
Annual Average Emissions (Tons/Day)
MERCED COUNTY
MISCELLANEOUS PROCESSES
650-FUGITIVE WINDBLOWN DUST

Download these results (as a comma delimited file).
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<i>EMISSIONS INVENTORY CATEGORY</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
650-650-5400-0000 Methodology 650-DUST FROM AGRICULTURAL LANDS (NON-PASTURE) 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	12.31	5.59	0.97
650-651-5400-0000 Methodology 651-DUST FROM PASTURE LANDS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	2.74	1.24	0.22
650-652-5400-0000 Methodology 652-DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	0.78	0.46	0.06
TOTAL	-	-	-	-	-	15.83	7.30	1.24

ALMANAC EMISSION PROJECTION DATA BY EIC (PUBLISHED IN 2013)
Annual Average Emissions (Tons/Day)
MERCED COUNTY
MISCELLANEOUS PROCESSES
620-FARMING OPERATIONS

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<i>EMISSIONS INVENTORY CATEGORY</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
620-614-5400-0000 Methodology 614-TILLING DUST 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	10.28	4.67	0.70
620-615-5400-0000 Methodology 615-HARVEST OPERATIONS - DUST 5400-DUST 0000-SUB-CATEGORY UNSPECIFIED	-	-	-	-	-	11.56	5.25	0.79

Existing Cropped Fields				
Field	Acres	Crop	Total Cropped Acres	Crop Type
Buhach Field	52	oats, silage-soft dough	249	oats, silage-soft dough
	52	corn, silage	249	corn, silage
Home Field	36	oats, silage-soft dough	0	Alfalfa, hay
	36	corn, silage	0	earlage
New Field	148	oats, silage-soft dough	0	Sudangrass, silage
	148	corn, silage	0	Almond
Pump Field	13	oats, silage-soft dough	498	
	13	corn, silage		
Total Acres	249			

Proposed Cropped Fields				
Field	Acres	Crop	Total Cropped Acres	Crop Type
Buhach Field	52	oats, silage-soft dough	242	oats, silage-soft dough
	52	corn, silage	242	corn, silage
	52	Sudangrass, silage	0	
Home Field	29	oats, silage-soft dough	0	Alfalfa, hay
	29	corn, silage	0	earlage
	29	Sudangrass, silage	0	
New Field	148	oats, silage-soft dough	242	Sudangrass, silage
	148	corn, silage	0	Almond
	148	Sudangrass, silage	0	
Pump Field	13	oats, silage-soft dough	726	
	13	corn, silage		
	13	Sudangrass, silage		
Total Acres	242			

Dry Manure Applied - Existing	
Field Name	Acres
Buhach Field	52
	52
Home Field	0
	36
New Field	0
	148
Pump Field	0
	13
Total Acres	301

Dry Manure Applied - Proposed	
Field Name	Acres
Buhach Field	0
	52
	0
Home Field	0
	36
	0
New Field	0
	148
	0
Pump Field	0
	13
	0
Total Acres	249